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Poetry.

THE CHURCH YARD STILE.

BY MISS ELIZA COOK.

I left thee young and gay, Mary,
When last the thorn was white;
I went upon my way, Mary,
And all the world seemed bright;
For though my love had ne'er been told,
Yet, yet I saw thy form
Beside me in the midnight watch,
Above me, in the storm.
And many a blissful dream I had,
That brought thy gentle smile
Just as it came when last we leaned
Upon the church-yard stile.

I'm here to seek thee now, Mary,
As all I love thee best,
To fondly tell thee now, Mary,
I've hid thee in my breast;
I come to yield thee up my heart,
With hope, and truth and joy,
And crown with manhood's honest faith
The feelings of the boy.
I breathed thy name, but every pulse
Grew still and cold the while,
For I was told thou wert asleep,
Just by the church-yard stile.

My messmates deemed me brave, Mary,
Upon the sinking ship;
But the flowers o'er thy grave, Mary,
Have power to blanch my lip;
I felt no throb of quailing fear
Amid the wrecking surf,
But pale and weak I tremble here,
Upon the osiered turf,
I came to meet thy happy ace,
And woo thy gleesome smile,
And only find thy resting place
Close by the church-yard stile.

Oh! years may pass away, Mary,
And sorrow lose its sting,
For time is kind, they say, Mary,
And flies with headlong wing;
The world may make me old and wise,
And hope may have new birth,
And other joys and other ties
May link me to the earth;
But memory, living to the last,
Shall treasure up thy smile,
That called me back to find thy grave,
Close to the church-yard stile.

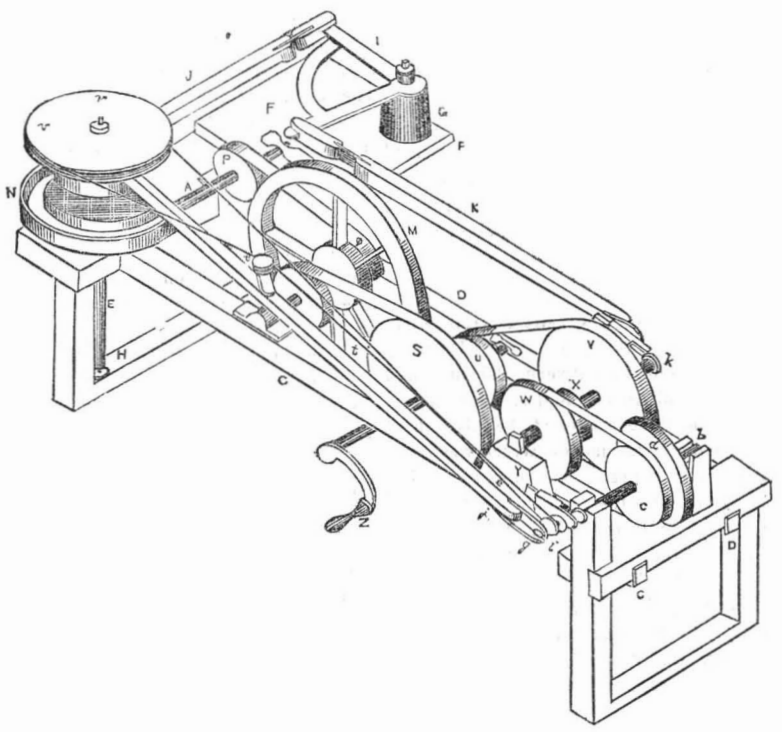
Dirge at Sea.

Sleep!—we give thee to the wave,
Red with life-blood from the brave;
Thou shalt find a noble grave,
Fare thee well!

Lonely, lonely is thy bed,
Never there may flower be shed,
Marble reared,—or brother's head
Bowed to weep.

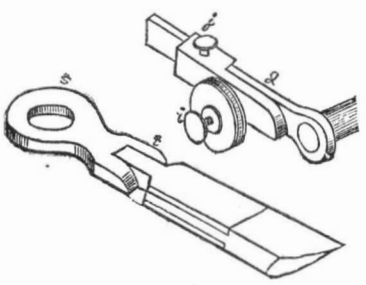
Yet thy record on the sea,
Borne through battle high and free,
Long the starry flag shall be.
Sleep! O sleep!

MACHINE FOR GRINDING THE MIRRORS OF REFLECTING TELESCOPES.---Figure 1.



There is not a single complicated machine, from which useful hints may not be taken; and from this one much information may be received. It stands upon four legs; there is a cross block, A, at the one end, and there is a similar one at the other end. C D are two longitudinal bars secured at the ends of the cross blocks; F F is a square front, carrying a pillar, G, which is firmly fixed by screws to the cross block; E is a mandril, which tapers gradually to the lower end, where it rests upon a screw, H, made of hard steel. The upper part of this mandril works in a bell metal collar. There is a bell crank, I, attached to the two arms of connecting rods, J K; this bell crank is secured upon a steel arbor, firmly secured to it by a nut. The connecting rods, J K, are double universal jointed; they receive the ends of the bell crank, in cross cuts. M is a fly-wheel. Upon the top of the mandril, E, there is placed a chuck of cast iron, upon which is placed the polishing tool of tin; between the chuck and polisher is a rim, N, of sheet lead, resembling a frying pan;

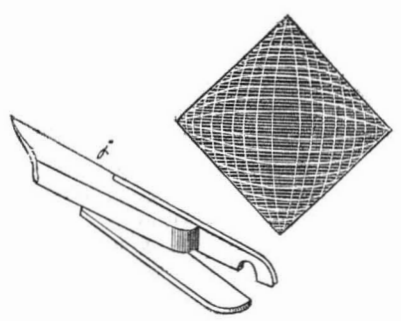
FIG. 2. AND 3.



this is to catch the stuff that is given off in polishing to keep all clean. The polisher must be of the right convexity required, being set to do this after it is placed in the chuck. Underneath there is a pully with a thread cut on its periphery, which is moved by a worm on the axis, which runs from the pully P, which gives a slow motion to the chuck. The pully, P, is moved from the axis of the fly wheel, which is driven by a band from the drum, S, of the crank. V is a pully, on the axis of which are two others, X W, driven by a band from the pully, U. The axis of V stands above the others on the blocks, Y, (one seen.)

The nigh leg of the frame is longer than the others, supporting an axis at one end, and a pillar, *b*, at the other end. On this axis are two pullies, *d e*, to change the band from W *c* to X *d*, quickly. Upon the end of this axis there is a strong straight crank, *g*, which is graduated on its face, an enlarged view of which is seen in fig. 2; *h* is a square tube with its outer side projecting, on which is a steel stud, *i*, made to slide over the axis; *j* is a screw to vary the length of the crank. There is a small pully on the end of the stud, *i*, which gives motion to the mirror; to the end of this stud is attached the connecting rod, *t*, fig. 1, an enlarged section seen in fig. 3, as known by letters. This rod is attached at one end to the back of the mirror. A nearly similar connecting rod is attached to the bell crank on the other side. These connecting rods are attached to the cranks, as represented in the last figure. All mirrors have a back of hard pewter, made of about two-thirds the diameter of the speculum, made thick in the middle and decreasing to the edge. Its receiving surface is turned to fit the back of the mirrors. A screw is secured to the back of the mirror, passing through the centre of the back

FIG. 4. AND 5.



to the centre of the mirror and united with pitch; *s*, fig. 3, is a brass handle to fit into this screw, by a circular cylinder, and thus this handle is secured to the back of the mirror, and it is also united to the connecting rod, as represented at *t*.

In fig. 1 *r* is a screw on the top of the pully, *v*, to allow the pully to be put on and taken off; it keeps the rings below in their proper places, and rotates the mirror, which also receives its compound motion by the connecting rod, like an eccentric mill. Thus, while the polisher rotates the mirror describes curves, as represented in the conic sections of fig. 4. These, at one time, could only be done by hand, but now more accurately by this machine; for by the way of changing the lengths of the connecting rod, any degree of curvature may be given, and which, as is well known, depends upon the length of stroke. The vertex of a parabola should always be in the centre. In polishing by hand, the heat and uneven pressure of it, has a wonderful effect upon its figure, which no care, scarcely, can prevent. A most excellent powder for polishing specula, is made by grinding red oxide of iron in a porcelain mortar, and then floating off all the fine particles in water; then this is to be mixed in a long tube with gum water and let stand for some time, when the coarser par ticles will fall, then the upper part is to be decanted off and mixed with more water, and in a few days it deposits a powder, which, when dried, makes a most splendid powder for polishing mirrors. Care is taken in polishing specula, not to get too great a speed, to heat the pitch and distort the polisher. Specula for astronomical telescopes is made of tin and copper, not glass. These sections are enlarged views of some parts for more clear illustration.

RAILROAD NEWS.

Rail Road Convention.

A large convention of those opposed to the New Jersey Rail Road monopoly, was held at Trenton, N. J., on the 5th inst. It was composed of "very respectable gentlemen, who passed a number of very strong resolutions against the injustice and destruction of equal rights of the people by clothing monopolies with such peculiar privileges as the Jersey Rail Road possessed. One Resolution, and the main one in our view, was this:

Resolved, That the passage of a general Rail Road law is essential to the promotion of the interests of the people of the State.

We like to see general principles established, such as the one now generally acknowledged of private property, and then our people know how to proceed without getting new acts passed for the privilege of digging for Kidd's ship, or a ditch or road through the salt marshes.

Rochester and Syracuse Rail Road.

A meeting was held last week at Rochester N. Y., for the purpose of taking into consideration the propriety of consolidating into one corporation the Auburn and Rochester Rail Road and the new proposed straight road between Syracuse and Rochester. Both roads should pay. The south one to strike in with the branches of the southern countries, and the straight one for passengers to the east and west.

New Jersey Rail Road.

The fare on the rail road between this city and Philadelphia, is reduced from $4 to $3. This is so far so good, but we believe that if it was reduced to a dollar less still, it would prove as profitable to the Rail Road, and be of great benefit to the travelling community.

The British Colonies.

Our colonies says the London Spectator, are mostly in a state that makes men talk of "separation." Canada murmers and moves with an insurrection deferred; the West Indies resent the arrogant trifling of the Colonial office, and also cast about for some plan which will render them independent of that office, the Cape colonists talk of resisting the proceedings of the Imperial Executive *vi et armis;* and our colonies beyond the Cape cry out with every sort of grievance.

Languages and Learning.

It is curious that some learned dunces, because they can write nonsense in languages that are dead, should despise those that talk sense in languages that are living. "To acquire a few tongues," says a French writer, "is the task of a few years, but to be eloquent in one is the labor of a life."

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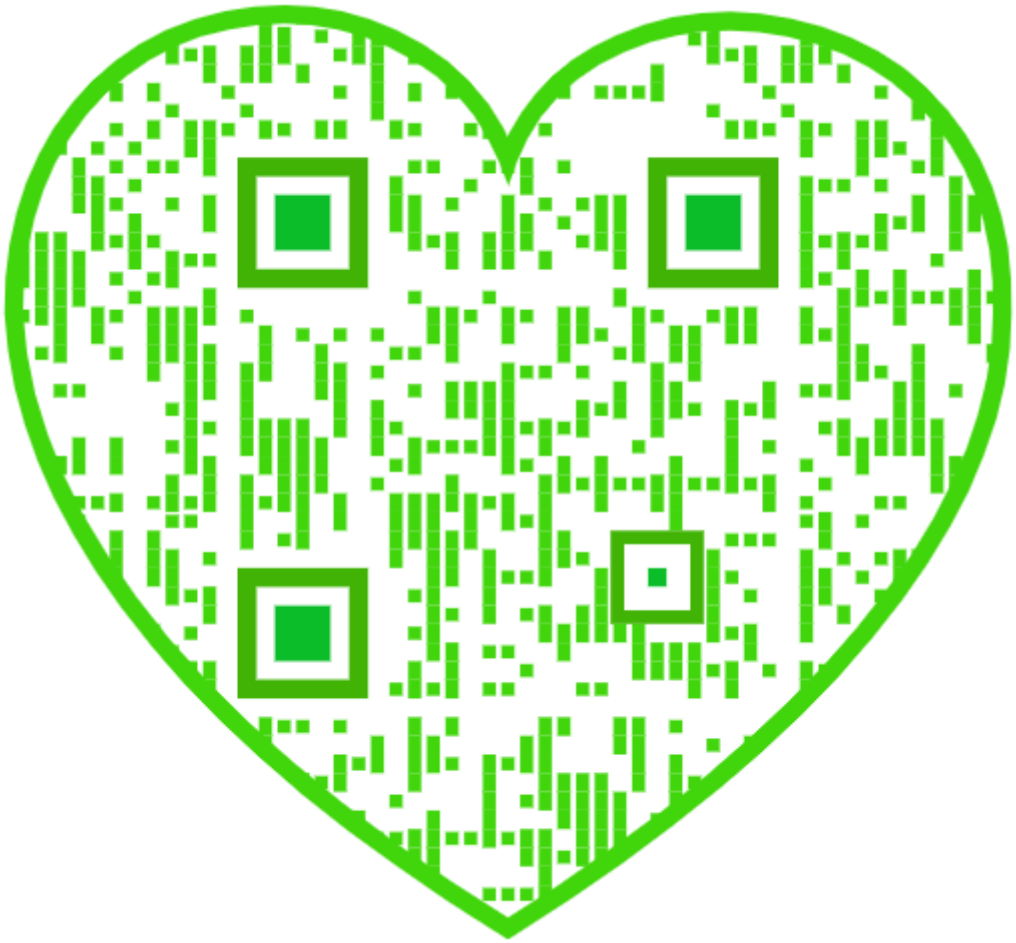

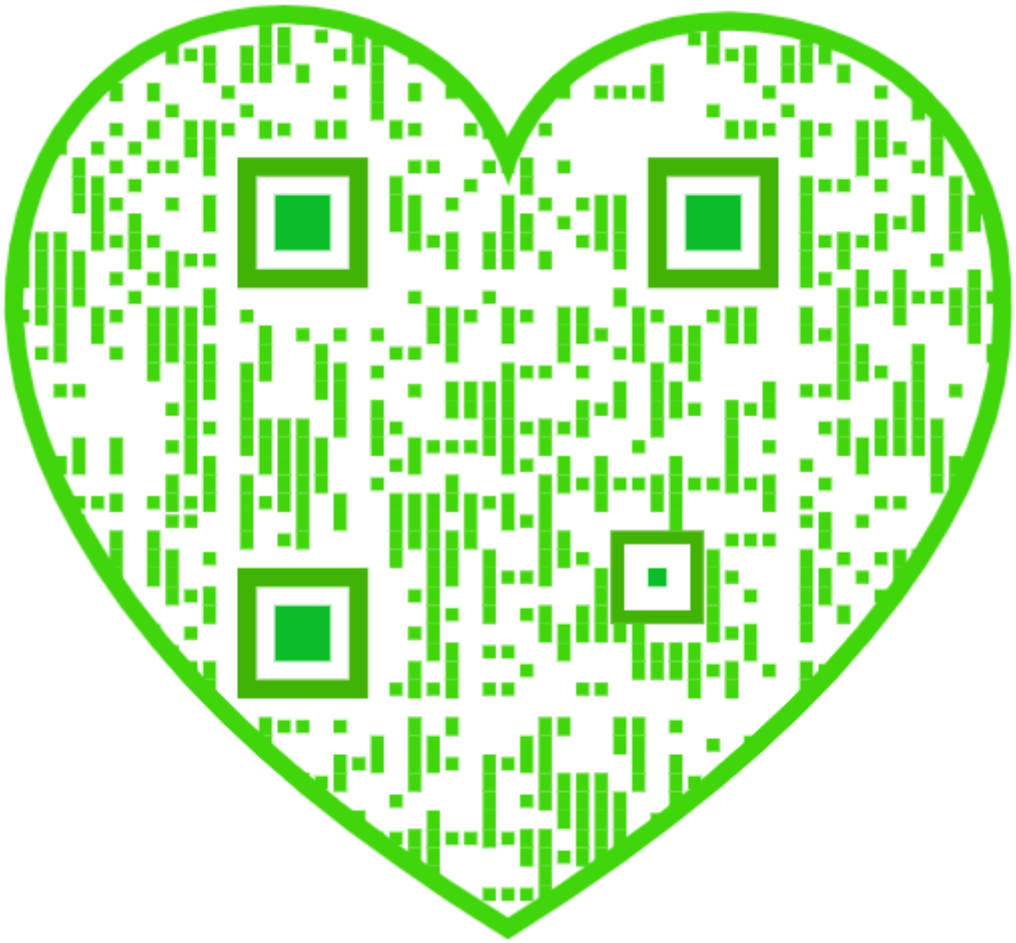

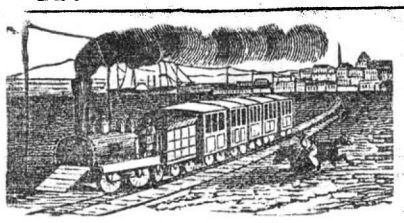

The Foolery of Wealth and Fashion.

Real sound sense is a precious but scarce commodity among the illustrious, wealthy and vain. It is particularly so among those fools who strut themselves out in pomp, gaud and fustian at the annual Fancy Balls at Saratoga and Newport. There the elite of fashion do congregate every year to ape awhile "the rank of the guinea's stamp," and no more. There are "would be kings" without brains to reign, except for one brief hour, at the expense of a false crown, plume and doublet; dukes, duchesses, &c., are manufactured for the occasion. What a laughing stock they must be to the real titled fools of the British army, who are witnesses to their vain desires, every year, at Saratoga. Out upon such nonsense, it surpasses the Beggar's Opera. On the 25th of last month a Tournament and Fancy Ball were celebrated at Shannondale Springs, Va. Three rounds decided the right of crowning the Queen, and numerous sallies were subsequently made for three Maids of Honor—all of whom were finally selected from the fashionable group present. A Fancy Ball concluded the mock-heroic pageant. Now is it not a great pity that we have not kings and queens in this Republic, for some of these people would make fine grooms and maids of the royal chamber—all that they would be good for.

Water Saving Expedient.

The Land and Water Company, owning the factories at Lowell and elsewhere on the Merrimack, purchased a few years since, the right to the water of Lake Winnipissiogee. The Lake now constitutes a vast reservoir for the supply of water to the Merrimack, during the mouths when the river is at a low ebb. To obtain the command of the water a new channel has been excavated, parallel to the old one.

This enables them to command eight feet of water in depth of the whole surface of the lake. The supply thus obtained is invaluable. For some weeks past the Merrimack has been so low, that without this supply many of the cotton mills could have worked but a portion of their machinery. Some one has said that the aid thus obtained is worth a thousand dollars a day to the manufacturing companies. A single inch per day upon the surface of the Lake will usually be all that is required, and hence the eight feet will afford a supply for ninety-six days.

The Gymnastic Balloonist.

Victor Vardale who failed to get up in his first attempt, as we noticed in our last, made another effort nothing daunted on Wednesday, the 5th inst., front Vauxhall Gardens, and was quite successful. The balloon having been inflated, Mons. Vardale secured his feet to a narrow platform which he had substituted for the usual car, and the fastening been loosened, the ærial *voyageur* was swiftly carried up to the region of clouds, suspended by his feet, performing various gymnastic exercises during the trip.

The balloon took a westerly course, and when immediately over the Hudson river the gas began to escape very rapidly, causing it to descend with such a velocity which threatened injury to the adventurer, either by plunging him into the water or dashing him to the earth. Fortunately, however, for the personal safety of the æronaut, he alighted in a tree in the Elysian Fields at Hoboken. The balloon however was rent in pieces.

The Astor Library.

The work of demolition has been commenced among the shrubbery and stately trees of Vauxhall Garden, in Lafayette Place, near the Opera House, preparatory to laying the foundation walls of the Astor Library Building. The building will be 120 feet in length, 65 wide, and 67 high. It is expected that it will be completed in two years, at a cost of about $85,000

An Adventurous Lady.

The Bangor (Me.) Conrier of Wednesday, says:

Mrs. E. Oakes Smith, one of the most accomplished female poets of America, has been spending some time with her friends in this city, and has recently, in company with one of the accomplished women of our city, made an excursion to, and spent a night upon, the top of Katahdin mountain! Mrs Smith has great fondness for exploring mountains. She was the first white woman who visited Mount Kinneo at Moose Head Lake, four years since; and she is the first white woman who has ever visited the top of Mount Katahdin. The visit to Katahdin was attended with great exertion and no little peril; and the verbal account which Mrs S. gives of the ascent, of the magnificent scenery, after reaching the top of the mountain, of the terrors of a stormy night there, and of the varied incidents of a week in the woods, fording streams, and walking fifty miles on foot, is so animated and unique as to make us exceedingly anxious to see her written description, which is soon to appear.

Travellers Baggage versus Rail Roads.

A case was recently decided at the District Court, Philadelphia, between Baldauff and the Camden and Amboy Railroad for damages for loss of the contents of the plaintiff's trunk, in which was money, which was lost. The plaintiff, it appears, paid for extra freight but failed to inform the company's agent that there was money in the trunk. The question was whether the plaintiff could recover for the money lost. The defendants proved the usual newspaper notice, limiting their responsibility for the baggage, which the Court disregarded, it not being shown that the plaintiff knew of the notice, or had seen it. They also relied upon the notice on the passenger's ticket, which the Court said applied only to cases of loss from accident. The defendant's counsel argued that although they would be liable for the ordinary contents of a trunk, they could not be made responsible for unusual and valuable articles, such as money, jewels, &c., unless they had notice, and it was proved that such notice had not been given. The court gave judgment for the plaintiff, on the ground that the charging and receiving extra freight for the baggage was sufficient evidence of the contents of the trunk."

A Narrow Escape.

The superiority of *felt* over paper, to be applied to the bottom of ships beneath the copper, is well illustrated by the following singular fact. The ship Dorothea, sent on a voyage of dicovery to the Arctic regi ons, was crushed between two fields of ice; the shock was so tremendous, that several beams which support the deck were broken, and all on board expected she would founder; but, to their surprise, no leak was disco vered; and hence it was thought that the beams were the only part damaged. She arrived in England without leaking; but when taken into the dock and stripped, for the purpose of examining into her state, it was discovered that 96 of her timbers under water were broken, the plank of the bottom deranged, and that the *felt* had saved the ship

Poetree and Poetry.

The following sublime extract is taken from an epic poem newly caltskinned from the press of Mr. Wiley, by R. W. Landis of this city. The writer is describing Montgomery's attack on Quebec:

"Meanwhile Montgomery his rapid way
Is urging. Yet unable is to avail
Himself of the impression upon the town.
But pressing on amid the pelting storm,
He from the potash Battery drives the guard,
And in a narrow defile rushing gains
The block-house," &c.

[Oh what agonizing sublimity is here, my countrymen.]

Trouble in the Church of England.

"Baptismal regeneration" has been declared to be a doctrine of the Church of England, by the highest legal authority. This places the evangelical portion of the society in rather an unpleasant position, and will probably hasten an explosion of the "church and state" fallacy.

Desperate Bravery.—Trappers' Fight with a Sioux War Party.

Three trappers, Vale, Cass, and Young, says the Jackson Co. (Iowa) Democrat, while looking for beaver in the vicinity of Morcou river, discovered a large trail, rightly supposing that they were in the vicinity of a strong band of Indians. They selected a suitable spot, and built of logs and poles a small hut, to which they gave the name of a fort. Before it was finished the Indians made their appearance. They showed that they were determined to have their scalps. Vale and his companions prepared for a desperate resistance. At the first fire of the Indians Young was shot through the head. Vale and Cass returned the fire, when three Indians fell, at which they raised the war whoop The unequal contest lasted several hours, Cass loading the guns, while Vale, with unerring aim, thinned their ranks. Cass imprudently exposed his face and received a ball in the eye. Vale was now left alone to contend against the Indians. He made the best of it, and loaded and fired in such rapid succession that the Indians were on the point of retiring, when he fell mortally wounded. The Indians lament his death; they buried him without scalping him, and honor him with the name of Eagle Brave. 28 Indians were killed in the action. Vale's relatives reside in Milwaukie.

Dr. Chalmers on Courtesy.

"I also observe that the power of diffusing happiness is not the exclusive inheritance of the rich. All are capable of it. The poorest of men can cheer me by his affection, or distress me by his hatred or contempt. Every man is dependent on another. A piece of neglect, even from the lowest and contemptible of men, is fit to ruffle the serenity of my happiness; and a civil attention, even from the humblest of our kind, carries a most gracious and exhilerating influence along with it. Let me never hear, then, that the poor have nothing in their power. They have it in their power to give or withhold friendly attentions. They have it in their power to give or withhold kind and obliging expressions. They have it in their power to give or withhold the smiles of affection and sincerity of a tender attachment. Let not these humble offerings of poverty be disregarded.—The man of sentiment knows how to value them; he prizes them as the best deeds of beneficence. They lighten the weary anxieties of this world, and carry him on with a cheerful heart to the end of his journey."

Profit of Using Steam Expansively.

At a late meeting of the British Mechanical Engineer's Association, Mr. Fairbairn stated that about ten years ago, the average mean expenditure of coal per hour as indicative of a horse power, was ten pounds, but now it was less than six pounds.

Cotton Manufacture in Rhode Island.

Rhode Island has within her limited territory 163 cotton mills, consuming annually 56,000 bales of cotton, and manufacturing 70,000,000 yards of cloth.

A Tall Mule.

Dr. W T. Bledsoe, of Franklin, Howard co, Mo., owns a Mule three years old, which stands 17 hands high, and weighs 1100 lbs.

Two steam sloops of war, the one a propeller, the other paddler, have been tried in England. The results were favorable to the propeller.

In the review of Judge Kane's decision, last week, it stated that the trial of Wilson vs Barnun would take place on the 5th of October next. It should have read the 15th.

A large meeting has been held in Montreal to project measures, in concert with the citizens of this State, for a ship canal from the St. Lawrence to Lake Champlain.

Laziness grows on people; it begins in cobwebs, and ends in iron chains. The more business a man has to do, the more he is able to accomplish, for he learns to economize his time.

A large Glass Manufactory is about to commence business at Knoxville, Tenn. The operatives to make the glass have been taken from Jersey city.

Profl. Barry's Tricopherous

What more can we say of this excellent article for the hair? We have repeatedly extolled its merits but still are confident that our readers do not *all* appreciate its value or many would wear better heads of hair than they seem to possess. Barry's tricopherous is the only article we ever used that was perfectually effectual in eradicating dandruff from the head, but since we first tried that, we have constantly had it in use and consequently worn a clean cranium and lived a happier life. For sale, at 137 Broadway.

Convention of Georgia Manufacturers.

A Convention of Manufacturers was held at Stone Mountain, Ga., August 17th, at which 25 delegates were present, representing 19 companies, with a capital, of $1,220,000. A State Association of Manufacturers was formed, the first meeting of which is to be held at Augusta, on the second Wednesday of October next. The object of the organization is to gain statistical information from the various factories, take measures for increasing the importance of manufactures in that State, and improve the various departments of the business.

Rat in a Queer Place.

In the fore cross-tree of the steamship Sarah Sands, a few days prior to her departure, was found a nest, containing an old rat and eighteen young ones. The place in which they were discovered so carefully nestled away, is about forty feet above the deck of the vessel.

Bullion in the Bank of England.

The Bank of England's accounts, present the usual evidences of a sound condition.—There lies buried in the monster's bowels no less than $70,556,000, in gold and silver coin and bullion, of which over thirteen fourteenths consist in gold.

MacAdamised Road in Egypt.

The Pacha of Egypt has contracted for the formation of a Macadamised road across the desert of Cairo to Suez; and on its completion omnibuses will ply instead of the uncomfortable carriages which are now employed.

An English Gentleman, by the name of Murray, has succeeded in restoring an illegible vellum manuscript by first steeping it in a solution of chloriate of potass, and, when subsequently dried, immersing it in tincture of galls, or hydrochlorate of potass. There-stored characters were black in the former and blue in the latter case.

A large Cotton factory is now going up at Mobile, Ala.; a paper mill is in progress; a dry dock is about to be commenced, and, within a few weeks, some five hundred men or more will be at work on the Mobile and Ohio railroad.

Vain is it for woman when a virtuous love has once entered the breast to attempt to expel the intruder. Once admitted, it is like the key stone of an arch which force, instead of dislodging, presses more firmly into its place.

A Iron Steamer, 200 ft. long, 27 ft. beam, 700 tons burthen, and with double engines of 300 horse power, has been launched at Greenock. She is called the Bolivia, and is to run in the Pacific Steam Company's lines.

The number of immigrants into the United States last year was estimated, on the most accurate data that could be obtained, at 250,000. This year the number will probably reach 300,000.

The girls at Ogden Factory, Cohoes, in this State, have struck against a proposed reduction of wages, from 20 to 17 cents per cut. The Company advertises in the Tribune for other weavers.

The French government is endeavoring to dispose of its interest in the Lyons railway, to avoid the necessity of the proposed loan of two hundred millions of francs. Some English capitalists have made an offer for it.

The Rev. Henry Coleman, of Massachusetts, author of a recent book of English Travels, died at Islington, near London, the day before the Caledonia sailed, in which he had engaged his passage.

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[Concluded from Page 403.]

COAST SURVEY.

Prof. Bache presented an account, history, &c., of the Coast Survey. The principle of it is, First, a base line is measured, from six to ten miles in length, as accurately as it is possible to make it. From this, by measuring again at the extremities of the base, a system of Triangulation is procured, of gradually increasing size. The base is enlarged, extended to a greater distance, and thus the surface of the earth is covered with a network of triangles, each side of which is calculated from the measure of the angle, and from the originally determined length of the base. This would be easy if the triangles were upon a plane surface; but it is not so simple as it would at first appear. In these large triangulations the earth is not considered as a plane surface, but as a spheroid.

The triangulations, it will be perceived, have the advantage that distances of points between which we cannot measure, can be determined, by this system of calculations, with any required degree of accuracy.

The next step in the proceedings is the Astronomical character of the Survey. This series of observations having been settled, we can now determine, by computation from the triangles, the longitude of any place, or the connection of different phenomena.

A point of the scheme has now been reached where progress may be very rapid. The chief points being so fixed, a second triangulation is formed within the first, for shorter calculations and observations—and there is a still more convenient, less exact mode of calculation, by the use of the plane table. While, by the Hydrographic Corps, a picture is made of the ground beneath the water in a similar manner to that of the Topography above it——making the matter complete in all its parts.

COMETS.

Prof. Pierce—He observed that there had been a century of accurate observations upon the phenomena of Comets, so that the inquiry may now well come up, whether they are component parts of the Solar System, or strangers visiting us from other systems. His own opinion was that they are component parts of our own system; and that, as a general rule, Comets in different systems belong to and are likewise essential component parts of that system. He came to this conclusion strengthened by two classes of arguments—the first arising from the nature of their orbits, from their not being hyperbolic. Of the hundred Comets which have been carefully observed and their orbits accurately computed within the last century, not one has been shown to have a decidedly hyperbolic orbit. While, if they do not belong to our system, he held that at least one-half of them, upon the average, ought to move in precisely that kind of orbit.

In this connection, Prof. Pierce combatted La Place's doctrine of chances, illustrating his objections by sundry charts, &c. He protested against using the doctrine of chances for the absolute determination of laws; and passed into a mathematical investigation of the whole matter, to establish his belief.

MOISTURE AND ORGANIC MATTERS IN THE ATMOSPHERE.

Prof. Horsford commenced observations in this department on the last day of February, and continued there until the 12th of April—and thence occasionally, down to the 20th of July. They were accompanied by notes of the barometer, the temperature, and the direction and force of the wind. Among the results obtained were the following, as briefly given by Prof. Horsford:

That, other things being equal, the moisture is in general proportionate to the temperature; that slight variations of temperature are not accompanied by corresponding variations in the quantity of moisture—and that great variations in the quantity of moisture may take place, while the temperature and altitude of the mercurial column remain constant. The quantity of the moisture, too, has even doubled in the course of an hour, although the temperature became reduced. In general, again, the moisture on the same day seems to depend chiefly on the direction of the wind.

The least quantity of moisture was observed during a N. W. or N. N. W. wind; the largest during a S. W. or S. S. W. wind. The former occurred on the 12th of March, and the latter on the 23d of June last. The quantity on the latter day, remarked the Professor, was to that on the former as more than fifty to one.

The quantity of Ammonia in the air was determined by an apparatus of Prof. Horsford's own construction, through which a known volume of air was transmitted. Several determinations having been made, it was ascertained that the quantities of Ammonia in the *east wind* varied considerably from each other; and such was the discrepancy of the Professor's results that he forbore a statement of the quantities ascertained—only so far as to remark that they very greatly exceed those obtained by Fresenius in his recent determinations at Wiesbaden.

THE RELATION BETWEEN THE ELASTIC CURVE AND THE MOTION OF THE PENDULUM.

Prof. Pierce—The Professor called attention to the similarity between the problems of the elastic curve and the pendulum. The external sensible phenomena, he said, are very dissimilar, but intellectually they are the same, and the same principle is applicable to the solution of each. The elastic curve is that formed by an elastic rod bent from its direction. The tendency of the rod to restore itself is proportioned to the amount by which it is bent from a straight line. The square of the velocity of the pendulum, when starting from a state of rest, is proportioned to the space through which it falls. Prof. P. developed the equation derived from these principles, and showed them to be identical. The same formula are applicable to the solution of the two problems, although different designations must be given in the two cases, to the letters involved in the formula. Those denoting, in the problem of the elastic curve, the angular deviation from the primitive direction of the straight rod, the actual removal from the primitive position, and the length of the rod, are, in the case of the pendulum, respectively the angular deviation from the statical position, the velocity and the time. The intellectual phenomena are precisely the same in both problems, but have a difference of material form corresponding to this difference of notation.

According to the greater velocity given to it, the pendulum moves from a state of rest, vibrating in a greater arc, till at length it may be started so rapidly as to turn completely over, in which case the motion will always continue in the same direction. In the same way the elastic curve may bend back and forth in a tortuous course, or by a great increase of force it would pass round and round without any point of contrary flexure. But whereas the motion of the pendulum is perfectly monotonous, the variety in the forms of the elastic curve is curious and interesting. The straight line, the circle, and a form similar to the figure 8, are different examples of the elastic curve; and intermediate between these simple cases are other forms singular in their grace and apparent complexity.

MAMALIAN REMAINS IN NEW YORK.

Mr. Redfield, of this city, exhibited specimens of mammalia remains which had been found in Broome County, on an elevated ridge separating the Delaware from the Susquehannah rivers. Whatever causes, observed Mr. Redfield, may be assigned for the occurrence of these animal remains in this locality, we must admit that their deposit took place at a period anterior to that in which the present level of the railway and the general surface of the adjacent country became covered with the drift in its existing form; or at least anterior to the vast period in which the incumbent materials, forty feet in depth, have been accumulated. The overlying deposits appear not to differ materially from those which cover many other portions of the contiguous country; while there are other portions and positions, more exposed, in which large and rounded boulders and worn pebbles are thickly dispersed. He also presented specimens of fossils taken from two boulders of rocks in the Drift at Orange, N. J., which belong, generally, to the Delthyris Limestone and the Oriskany Sandstone of the New York System. These boulders must have had their origin at a point not less distant than the Valley of the Rondout, the nearest outcrop of these rocks—having thus been carried over the mountain elevations of the Shawangunk and the Highlands by the active agencies of the Drift period.

This remarkable occurrence elicited considerable discussion among the geological portion of the members, and was justly considered important and interesting.

LAKE SUPERIOR COPPER.

Dr. Jackson gave a very interesting history of the Lake Superior Copper Mines. He stated that the Indians considered the huge pieces of native copper found there, as presents from the Great Spirit of the waters who threw them from the bottom of the Lake They were considered objects of mysterious reverence; cart loads of old Indian tools had been excavated from the mines, tools which were of Chippeway origin and not of an extinct superior civilized race.

ROTATIONS OF THE PLANETS ON THEIR AXIS.

Sears C. Walker, Esq., read a letter from Mr. Daniel Kirkwood, of Pottsville, Pa., giving an account of a new discovery of that law which governs the planets in their rotation on their axis. This is the first time that any thing like a demonstration of a law regulating the rotation of the planets on their axis, has been presented. Mr. Walker said that he had verified the correctness of Mr. Kirkwood's discovery, and said that no discovery of equal interest or importance had been made during this century, and in his opinion Mr. Kirkwood's name would in after time be placed by the side of Kepler's, as the discoverer of the law which, from the days of the primary planets, bore a close resemblance to the third immortal law of Kepler for their years. The formula of the law is: The square of the number of a primary planet's days in its year, is as the cube of the diameter of attraction in nebular hypothesis.

Prof. Haldeman presented some information about a new wingless grasshopper, found in Santa Fe. It has been learnedly dubbed with the title *Daikinia*, from the Sanscrit word of massiveness. The Prof. also presented some interesting papers on the languages of the Indians of this continent.

The next annual meeting is to be held at New Haven, Conn.

Plaster of Paris.

This is the sulphate of lime of the theorists. The raw stone called gypsum, plaster stone, or alabaster, is gotten in many places of England, as at Chelaston, near Derby, and Beacon Hill, near Newark. The former pits yield about 800 tons by the year, saleable at $1,25 by the ton. It is ground and used for manure, or rather as a stimulant for grass.

Gypsum is prepared for plaster of Paris in two ways, either by burning or boiling. It is burned by the masons, who use it for making floors or ceilings to houses. The operation is usually performed at night, that they may be the better able to see when the lumps become red hot, at which time they judge it to be sufficietly burned. It loses from four to six Cwt. in a ton. The parts which have been overheated acquire a yellowish cast, or a sulphurous odor, and are rejected, as causing the work to rise in blisters. After burning, it is beaten to powder with flails, or ground in a mill, and being mixed with water, is spread upon a bed of reeds. 30 Cwt. of the raw stone are required to make twenty square yards of flooring, two inches and a half thick.

The potters and figure makers boil their plaster by first grinding the raw stone, and then put it into a long brick trough, having a flue under it, or if a small quantity only is required, by putting it into a crucible set in a stove hole. The water escaping from the lower part of the mass, causes an apparent effervescence and decrepitation.

When the stone has not been boiled sufficiently, the plaster of Paris is a long time before it sets; and if boiled too much, it is called burnt plaster, and will not set when mixed with water.

Plaster of Paris is used by the potters to form moulds for their vessels, and also shelves on which to dry their articles; by the figure makers to form copies of statues; as also, by other artists, to form the basis of artificial marbles, or scaglioli, the different colors being given by the addition of colored powders; and to form a cement of a smoother aspect, and finer grain than lime cements. It is also used to form certain salts, by forming sulphuric acid.

Discovery in Oregon.

It has been supposed until lately, that the shores at Oregon, south of the Columbia river, was without indentation or harbors. Explorations for a considerable distance south of the Columbia have been made, which is producing an entire change in public opinion, and not only bays are found, but beautiful prairies, fine timbers, rivers and water power.

Tilamuke bay, situated about fifty or sixty miles south of the mouth of the Columbia river, is several miles in extent, receiving five rivers, some of which are good mill streams. Two miles back of this bay a prairie commences, varying from one and a half to three miles in width, and eight miles long. Below the Tilamuke bay two others have been discovered, which are worthy of being noticed; the first of which is known to the natives by the name of Celeste, and the second by the name of Yacquina. The bay is from a fourth of a mile to a mile in width, three miles long, and receives the waters of two rivers. A bed of excellent stone coal has been discovered on the bank of the Celeste river, ten miles from its entrance into the Celeste bay. There are several small rich level prairies on the Celeste river. The Yacquina bay is three fourths of a mile wide at its mouth, from a mile to two and a half miles wide, extends parallel with the coast from six to ten miles in length, and is perfectly sheltered from the ocean winds. There is considerable prairie in the immediate vicinity of Yacquina bay. All the rivers emptying into these bays abound with salmon and other fish, and the bays all afford clams, crabs, &c., in abundance. Within the Yacquina bay the water is deep, and the waves roll into the mouth from the ocean without any apparent obstruction.

Tea.

To have good tea the whole quantity of boiling water intended to be used should be as is the case in all infusions, poured at once on the leaves, previously bruised, left to stand until sufficiently impregnated, then strained off, and the auxiliaries, milk, cream, and sugar, added.

A still better method to preserve the flavor of the tea is, to pour the requisite quantity of cold water upon the bruised leaves, and put the vessel into a pan of water boiling on or beside the fire, until the tea is sufficiently heated to be poured off and drank, observing that if much milk, or the like is added, the tea must be made so much the hotter, that they may not cool it too much. This is the usual method in China.

A variety of British plants have been proposed as substitutes for Chinese tea, but they do not possess the quickly diffusible stimulus of the real tea. Besides, they are used too fresh; the Chinese keep their tea two years before they use it; and from their cheapness are employed in too great proportion to the water.

Punctuality.

Method, as Mrs. Moore says, is the very hinge of business, and there is no business without punctuality. Punctuality is important, because it subserves the peace and good temper of a family; the want of it not only infringes on necessary duty, but sometimes excludes this duty. Punctuality is important as it gains time; it is like packing things in a box; a good packer will get in half as much more as a bad one. The calmness of mind which it produces is another advantage of punctuality; a disorderly man is always in a hurry; he has no time to speak with you, because he is going elsewhere; and when he gets there he is too late for his business, or he must hurry away to another before he can finish it. It was a wise maxim of the Duke of Newcastle—"I do one thing at a time."—Punctuality gives weight to character—"such a man has made an appointment; then I know he will keep it." And this generates punctuality in you; for like other virtues it propagates itself.

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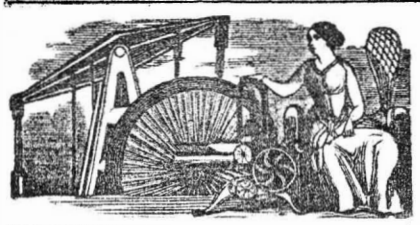


New Inventions.

The Ballance Dry Dock.

The Ballance Dry Dock, at the foot of Pine street, as now constructed, can receive and raise, in less than an hour, ships of the largest class, with their cargoes on board, or ships of the line, with their armaments; and this without danger of straining. The strength of the dock is secured by enormous kelsons and trusses of oak, fastened and connected as firmly as iron bolts and the most scientific principles of mechanics can join them, and forming a structure which, for beauty and strength, cannot be surpassed in this department of building. It is capable of sustaining from 2,000 to 3,000 tons weight. The lifting power is remarkable: the dock being one structure, and not divided into sections, the lifting is a single process, and the main power being thrown into the centre by a series of chambers in the bottom, which are filled with water when the dock is submerged, and pumped out when a vessel is to be raised; a great advantage is thus gained, and one which secures the success and usefulness of this and similar docks.

Flexible Ivory.

It has been long known that in subjecting bones to the action of hydrochloric acid, the phosphate of lime, which forms one of their component parts, is extracted. Bones preserved in this manner retain their original form, and acquire great flexibility. It is by this process that M. Charriere, a skilful maker of surgical instruments, in Paris, softens the ivory of which he makes use to manufacture flexible tubes, probes, and other instruments. These pieces, after receiving the required form and polish, are steeped either entirely or partially in acid diluted with water, where they remain as long as required. The ivory, having undergone this preparation becomes supple, flexible, elastic, and assumes rather a yellowish color. In the course of drying it again grows hard and inflexible; but the flexibility of the ivory may be restored by wetting, either by surrounding it with a piece of wet linen, or by placing sponge in the cavities of the pieces. Some pieces of ivory have been kept in a flexible state in the acidulated water for eight days; they were neither changed nor injured, nor too much softened; they had acquired no taste, nor any disagreeable smell.

Tupper's Hay and Straw Cutter.

Two weeks ago, among the list of patents granted, there was one, for improvements on Straw Cutters to Mr. Lewis Tupper of Auburn, in this State. Among the great number of machines of this nature patented, and in common use, it may be well supposed, that any machine for which a patent would be granted, must possess some really good and useful feature. This is particularly the case with this machine. It works with great ease; its parts are very simple, and it is therefore easily kept in order, and cheaply constructed. It will no doubt receive that share of public patronage, which it deserves.

American Lithographic Stone.

A quarry of fine lithographic stone has been discovered by Dr. H. McKenzie at Talladega, in Alabama. The lithographic stone heretofore employed in this country, have all been imported from Germany. The American stone is stated to be as good as the foreign. This will be a great benefit to the art, as it will no doubt be obtained much cheaper at home than to import it.

Colman's work says, "Private carriages in England have reached a wonderful perfection in beauty and commodiousness. It is a pleasure to stand in Hyde Park and see them pass, almost infinite in variety, yet all so excellent. The real English carriage is strikingly plain, but of a finish which fascinates the eye at once."

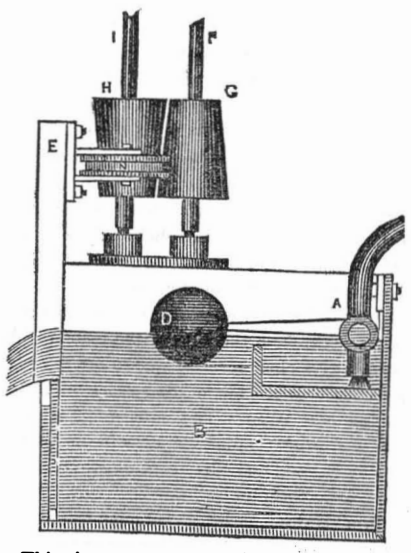
Horse Power.

Mr. Albert Sheek, of Mocksville, in Davies County, Va., has made an important improvement in Horse Power, for which he has taken measures to secure a patent. The improvement consists in regulating the power applied to machinery in connection with the master wheel of the horse power. The improvement, therefore provides a governor for the power applied, to suit variations of the amount o power required to operate the connected machinery.

Cure of Bald Heads.

We mentioned some time since that Mr. Wise, of Richmond, has invented an ointment that causes a thick suit of hair to spring out from the most inveterate bald head, in the course of a few days. The Richmond Republican says, in reply to the numerous inquiries made to them by letters on the subject, that it is Mr. Wise's intention to visit the north in a short time, and administer it to all applicants in person.

Self Registering Water Meter.



This is an apparatus for measuring the quantity of water discharged from a fountain in a given time—something very much desired sometimes. A is the pipe to supply the cistern B. The stop cock of A is regulated by the float D. There is an outlet of the cistern, and above it is a sliding weir (a board with a hole cut in the middle.) The weir must be raised or lowered by a handle or screw, till a stream of a suitable depth passes over it. The spindle, F, and the cone G are worked by a clock all the time the water is running over the weir, and motion is communicated to the counter by the spindle I, which has a cone H fixed on it. The guide pulley, N, and another guide pulley, which is placed on the opposite side of the cone H, are fastened by brackets to the top part of the weir E. A strap works upon the guide pulleys now spoken of, and passes between the cones G and H, and as these cones are pressed towards each other by a spring, the cone G will, by its action on the strap, communicate motion to the cone H. The motion of the cone G being uniform, the speed of the cone H will not be so great when the strap is working near the top end of the cones, as it will be when the position of the strap is lower, and as the weir and strap, from the way in which they are connected, must rise or fall together, the quantity of water running over the weir will be less when the cone H and spindle I are revolving at a slow rate, than it will be when the motion of these parts is quick. From this it is clear that the counters will point out the quantity of water expended, if the cones have such a form or taper as will cause the speed of the spindle, I, always to be in exact proportion to the quantity of water expended, whatever may be the position in the wier. The shape of the cones may readily be calculated; and any form may be given to them, provided the motion of the strap, up or down, in relation to that of the weir, be made to correspond.

Arkansas Marble.

The Little Rock (Ark.) Democrat says that fine black marble has been discovered near the head of steamboat navigation on White river. It appears on the bank on either side of the stream.

New Magnetic Perpetual Motion Machine.

Mr. Silas A. Snyder, of Clarendon, Orleans Co. N. Y., has discovered a new way of making permanent magnets to give motion to large bodies in so simple a manner that it is considered by many that it will be applicable to produce permanent mechanical movements. He has taken measures to secure it by patent, and he is expected to exhibit his invention in this city either during the latter part of this fall, or during the winter. The magnet is formed of an entirely different shape from any ever employed before, and the body to which motion is communicated by its attraction passes continually on a plane through its centre.

The Ammoniacal Blister of Goudret is thus prepared—Lard 32 parts, oil of almonds 2 parts; melt them together with a gentle heat, pour into a wide-mouthed bottle, and then add 17 parts of solution of ammonia, mixed by continued agitation. This will produce vesication in ten minutes.

Portable Filter.

This is a portable filter, designed by Mr. Louis Bonnet, of the Courier des Etas Unis, No. 12 Park Place, of this city, who will dispose of the same on favorable terms to those who desire to purchase. At the first glance the object and utility of this filter will not be understood, but this we will elucidate after describing the parts. A is a bag of vulcanized India rubber, or gutta percha; B is a tube that communicates with a vessel, C, which is made of porous earthenware; D is a faucet to draw the water from the vessel C. F is a small plug to admit air into the filtered water. Two or three thicknesses of canton flannel are placed in the tube, B, through which the water passes from A to C, to separate the impurities in the water; E is a strap to carry the apparatus and by which to hang it upon a peg, &c.

It is well known that the natives of the east keep all their water in porous vessels, and from them draw cooling draughts; when, if the water was kept in glazed or metal vessels, it would become quite tepid. The Arab, when crossing the desert, draws a cool cup from his porous goat skin bucket, even when travelling under the burning rays of an oriental sun. This is accounted for on the principle of rapid evaporation—the water inside radiating the heat so rapidly in the currents created by evaporating through the many pores of the vessel, that the water within is always found to be some degrees below the heat of the atmosphere. By putting a porous vessel containing water in the sun, (the hotter the better), and keeping the vessel sprinkled continually with other water, that contained within the vessel will be reduced almost to freezing temperature. A mouse has been frozen to death by sprinkling it with ether, upon the principle of rapid evaporation. Every person knows how cool the skin feels after rubbing it with alcohol. By filling the bag A with water and hanging it in a current of air in any part of a dwelling, we can not only have our water filtered but cooled, in the warmest weather, without the expense and artificial aid of ice, as the vessel C acts the part of a refrigerator to the water contained within it. This apparatus, therefore, has two qualities, in the production of certain results, and another in the simplicity, convenience and cheapness of its parts.

The evaporation of the water through the pores of C, cools the water a great deal, although it may not be placed in a current of air. These porous vessels, called "Alcarraza," are much used in Spain and other warm countries. A French chemist, "Darcet," found the best to be composed of 5 part calcarous and 8 parts clayish earths, and a small portion of salt—they may, however, be made of other materials.

New Locomotives for Common Roads.

The London Mining Journal gives a flattering account of a new locomotive for common roads, constructed on the high pressure condensing principle, from which it says if there is no error or miscalculation in the results, we must almost believe the system successfully matured. This engine, we are informed, is of nine-horse power; while in proportion it is the lightest ever made, weighing altogether about 30 cwt., consequently not much heavier than an omnibus. The boiler is on an entirely new construction, weighing only 8 cwt. There are two cylinders 4 1-2 inches in diameter, and the great advantage in its light weight is obtained by the use of an entirely new condensing apparatus, without which our informant believes no locomotive can succeed on common roads, in consequence of its own weight. By this apparatus, which consists of a great many small tubes, arranged in various directions, the steam will be completely condensed to a vacum, by which, it is calculated that there is a gain of 28 lbs. on an inch, at a speed of only fifteen miles per hour, above the power of the locomotive now in use, and the principle can be applied to every description of engine.

[The great thing about it is, that there is an error in the calculations. The best vacum will only gain 15 lbs. on the square inch.

Locomotives have been tried on common roads before in England, but although they run well enough, yet they were too expensive to keep up.]

How to use Chloroform in Surgery.

The London Medical Gazette, in a favorable review of Prof. "Lizar's Surgery," having expressed a regret that he had published his work before chloroform was used, the Professor addressed a letter to the Editor, in which he says, that "since the employment of ether, he had used it in lithotomy, amputation of the extremities, excision of the mamma, and in strictures of the urethra; and that although he commenced its use with prejudice, he had now become a thorough convert to its utility in almost every operation in surgery. When using chloform, the patient, he observes, should have an empty stomach, and for that reason operations should be performed before breakfast, as chloform always produces vomiting when the stomach is full, and the rejected fluid is liable to enter the paralyzed glottis and produce suffocation. To this cause he apprehends the great proportion of fatal cases under its use may be ascribed. An experienced assistant is therefore required to administer the chloroform, and to do nothing else. He must watch its effects, allowing fresh atmospheric air to enter the nostrils and mouth occasionally, during its administration and influence, otherwise the blood may become too greatly carbonized, and death ensue."

Muscular Developement.

M. Emilies du Boys-Redmond, communicated through Humboldt, to the Academy of Science, at Paris, a description of the following experiment, that establishes the fact of the electrical influence of the human system: Fix to the two extremities of a sensitive galvanometre, two strips of platinum: plunge these slips in tumblers of salt water, and then introduce into the tumblers the corresponding fingers of each hand, let them remain until the fluctuations of the needle cease. Then contract the muscle of one arm by an effort of the will, and a deviation of the needle will instantly indicate a contrary current of electricity in that arm. The amouut of deviation depends on the muscular development.

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NEW YORK, SEPTEMBER 15, 1849.

A Few Words to the Friends of the Scientific American.

This number finishes our fourth volume. In looking back we see that we have made some slips of the pen, and have said some things, though not many, that should have remained unsaid. No person is perfect—" to err is human."

The improvements which have been made, both in the appearance and matter of the Scientific American, since it was first established, are apparent to all. It is acknowledged on all hands, that it is the best, cheapest and most popular paper of the kind in existence. Our object has been to present, in the smallest possible space, a great deal of useful information. It is the spirit of our labors to compress and render clear all the matter on our pages.

The task and tact of selecting and condensing, require much labor, care and study, and we therefore often present as much information, sound and plain, in one of our columns, as can be found in whole pages of scientific books, or other periodicals, and our readers often get rare and important information in a paragraph, that might be sought for in vain through many huge volumes. We select from the best sources, the like of which, we venture to say, no other paper possesses, and our original articles and correspondence, are of a very superier character. We endeavor to get all reasonable information that may be wanted by our subscribers. We have promised at the commencement of every volume to make it superior to its predecessor, and we have faithfully fulfilled our engagement. We make the same promise again, and we ask the influence and countenance of our friends—and the friends of knowledge—to assist us in extending our circulation over a still wider field, just by endeavoring to get acquaintances to subscribe –to every one of whom we warrant ull value for their subscription. Heretofore we have never called upon our friends in vain —they have always responded to our requests —friends, we thank you for it—science is indebted to you for it—the inventors of our country are indebted to you for it; for you have been the means of placing upon a firm and solid basis, a paper which is the friend of industry, an encyclopedia of useful information, and the sincere advocate of the rights of men, of genius and worth.

We intend to make volume 5 superior to all its predecessors. It will contain more matter, will be printed with new type, and will be embellished with a handsome border: our Poet's column will give place to *useful receipts*, or other useful matter, and we will devote ourselves more assiduously than ever to make our paper still "The Scientific American."

Our columns contain matter that will always be useful, because true standard information, which will be as young a century hence as it is to-day. No inventor can be without it if he studies his own interest, and no man who desires to keep up with the progress of science, will be without it. We present the best receipts of any other paper, because, from experience, we presume to be able to judge between the correct and incorrect. Our great Republic now contains 20,000,000 of inhabitants, and although we have the largest circulation of any other such paper in the world, still we should have at least ten times as many subscribers. It is no easy matter to conduct and establish such a paper; this has been proven by the failure of many who have tried it since we commenced. The public always judge best about these things; they prefer to support the best.

We do not wish to make our sermon any longer; we have said enough to induce our subscribers, lovers of American science and art, inventors, and their friends, and all those who desire to see useful information more generally diffused among our people, to give us their countenance and future support.

Cheap Postage.

A Bill for a uniform system of Postage, will no doubt be presented to the next Congress. Some propose to insert a clause to carry all newspapers free; others, to carry them free, as in 1845, within a circuit of 30 miles from the office of publication. We do not wish this law revived, and we do not think the people are prepared for the other. If they were, and were agreeable to pay the newspaper postage tax out of some other fund, it would no doubt be a public benefit. We like the present system of newspaper postage very well, and the plan proposed by the Boston Cheap Postage Association, *being favorably regarded by several persons whose judgment is worthy of reliance*, shows that the knowledge and judgment of such persons on the subject, should not be trusted, for assuredly it would make matters worse, and every publisher should at once know what it is. If carried into effect, it will exclude all publishers from sending extra papers, without paying for the same themselves beforehand. Letters should be reduced from five to two cents, paid in advance, to any distance. This reduction, we believe, would not injure the Post Office revenue, and it certainly would be a general benefit.

Blake's Fire-proof Paint.

On our advertising columns of last week, there was one relating to this singular substance. It is a substance which was discovered a few years ago, in Ohio, by Mr. Blake, to whom a patent was granted for the same, and he has now removed to this city, No. 3 Broad street, as a centre for its sale. It is composed, as analyzed by Dr. Chilton, of this city, of silica, alumina, protoxide of iron, and magnesia, with a small admixture of lime and iron. When it is mixed with oil it can be spread on like paint, and forms a most enduring cement as a substitute for stone. It makes good slates, and shingles painted with it are made like slate in appearance, and rendered incombustible. It is capable of taking a fine polish, and it has one quality (the best in our view) of adhering to wood, incapable of scaling off. As we have had a number of enquiries respecting it, this will inform our readers where it can be found.

A Pension to the Wrong Man.

A pension of £200 per annum, from the Royal Bounty Fund, has been granted to Lieut. Thomas Waghorn, the projector of the overland route to India. Lieut. Waghorn receives also a pension of £100 per annum from the East India Company.

[We believe that the original projector of this route was Henry Bell, the first successful British inventor of the steamboat. In a letter published in the Manchester Guardian (an English paper) in 1825, he says: "I have no doubt of the practicability of steam communication with the East Indies. Their course ought to be straight up the Mediterranean, then cross the narrowest neck of land to the Red Sea, to meet other steam vessels, and then proceed to Madras. The voyage could be performed in 35 days, allowing 4 days to take in water and fresh provisions." It was the bad fortune of Mr. Bell to be nothing but a mechanic. Had he been a Captain, some Don or Duke, his just pension would not have been conferred on another, and in all likelihood he would have had a monument in Westminster Abbey.

Send in your Subscriptions Early.

As there are are about 9,000 subscriptions which should be renewed at present, we request our subscribers to forward their names early. It keeps all things square up to the mark. We like precision in business—it is the oil of it, to lucubrate its joints and prevent unnecessary friction. Volume 5 will be the most splendid Scientific paper in the world, unrivalled by its predecessors, which of themselves stand alone

Precations Against Poison.

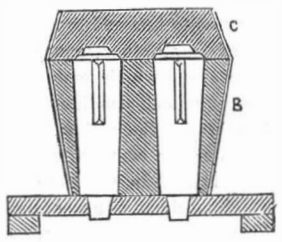
In Germany, to prevent poison being obtained for evil purposes, none is allowed to be sold without a written order or certificate from a physician. To prevent rat poison being made a bad use of, or taken by mistake, the arsenic is mixed with tallow or lampblack, which makes a compound that no human being could partake of. None is allowed to be sold in a pure state.

Worcester Mechanics' Fair.

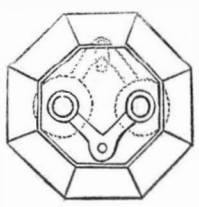
The second Fair of the Worcester County (Mass.) Mechanics Association, for the encouragement of Manufactures, the Mechanic Arts and Inventive Genius, will be opened on the 18th day of this month. Silver medals and diplomas will be awarded for new inventions, improvements in machinery and superior workmanship in every branch of industry. We commend this Fair to the attention of all who have a desire to exhibit the works of their genius and the products of their skill. The committee appointed by this association will do justice without favor, and award the prizes without partiality. All communications addressed (post-paid) to the Superintendant, Mr. Putnam W. Taft, will meet with polite and prompt attention.

Iron Moulding.

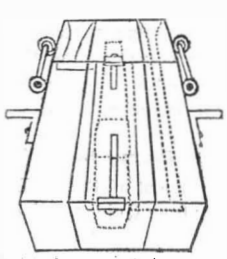
Concluded from page 408.



This first cut is a vertical section of the moulding boxes when rammed with sand. The accompanying cuts show the operation in different stages. When the two boxes are inverted and set down, the top box, A, is fixed on the second, and it is rammed flush with sand. Two holes are then made downwards in the sand by the rammer—one to each side of the patterns. One of them extends through the top box; the other reaches down to the lower box, then the upper and middle ones are lifted off the lower one and turned over, the patterns are then loosened by tapping, and drawn out, and the top and middle boxes are then separated. Two prepared core pins are next set as vertical as possible into the recesses left by the prints of the sand in the lowest box. On the surface of



the sand at each end of the box, B. channels are cut joining the git noles made by the rammer to the two mouldings, in such a manner that the short gate will be connected with the upper end, and the long gate with the under end of the mould. B is then lowered over the cores and fixed to the box C, being directed by the long guide pins at the side. The top box is then replaced, guided by the pin and fixed to the box B, (which must be done with great care) and thus the cores are secured between the top and bottom boxes. The last cut shows the moulding as finished, with the interior arrangement in dotted lines. The middle cut is a view of the upper and under ends of the middle box, showing the gits (gates) and channels.



The iron is poured into the long git, falling against the bottom of it when its force is broken and it runs gently into the mouldings, rising within them till they are filled, when it passes into the flow gate, carrying off the refuse which it may have gathered in its passage. Blacking need not be applied to these moulds, as their roughness outside is of consideration.

The whaling property of New Bedford, Mass., amounts in sperm and whale oil, and whalebone, to $3,122,962, a pretty good sum. There are 236 whaling vessels belonging to that port. The English whaling trade is destroyed by Yankee enterprise.

Marble Cement.

VALUABLE RECEIPT.—Take plaster of Paris and soak in a saturated solution of alum, then bake the two in an oven, the same as gypsum is baked, to make the plaster of Paris, after which they are ground to powder. It is then used as wanted, being mixed up with water like plaster and applied. It sets into a very hard composition capable of taking a very high polish. It may be mixed with various coloring minerals to produce a cement of any color capable of imitating marble. This is a very rare receipt, and is worth twenty dollars to many of our subscribers.

Cement for Stone Steps, &c.

Take clean river sand 20 parts, litharage 2 parts, and quick lime 1 part, and mix them with oil sufficient to form a thin paste. This composition has been used to coat brick walls; it becomes very hard.

Boiler Cement.

Iron filings 50 parts (pounded and sifted) and one part of salammoniac. When it is to be used, it should be mixed with as much water as will give it a pasty consistency.

Cement for Pipe Joints.

Mix equal parts of white and red lead with as much linseed oil as will make it into a paste.

Cement for Mending Marble.

Mix the white of an egg with finely powdered quick lime.

Common Blacking.

Ivory black, 12 parts; molasses, 6 parts sperm oil, 1 part; oil of vitriol, 2 parts; vinegar, 2 pints. Mix these well together.

The above receipts are valuable to many; in making them up any quantity can be made, as we have directed only for *parts*; let each part be one of weight, not measure; an ounce or a pound for a part—for the *parts* mean the proportions.

Paste Blacking.

Ivory black, 60 parts; vinegar, 12 parts, and the oil of vitriol 12 parts. Mix them together for 30 minutes and then add 9 parts of India rubber oil. This is a patent blacking, and is of no small value as a receipt.

To Smooth Wrinkled Papers.

We presume that about 9000 of our subscribers intend to get this volume of the Scientific American bound. As all those numbers that have been conveyed by mail are more or less wrinkled, the following is the plan to follow in taking them out and making them smooth:—Take each number of the paper separately and fold it neatly into its binding form; then take a sponge with some clean water and moisten it, (no more), only the worst wrinkles make more damp than the other parts; then take a warm iron at a good heat and iron the number until all the moisture is expelled. If any person has a press—tobacco, cotton or cloth lapper's—the quickest way is to put each number between a sheet of pasteboard, and submit the whole volume, neatly laid down, to a good pressure, and let it stay in for 10 or 12 hours. Many who are living far from a book-bindery, may stitch their numbers, (after being pressed with the iron) between two stout pasteboard sides—a large sheet, which will answer every purpose of binding until an opportunity occurs to get it bound in a superior style.

Sick Wheat.

As we expected, one of our exchanges, the St. Louis Union, suggests that there is a mistake in the statement going abroad, that rust wheat "is poisonous." Rust wheat ordinarily makes good bread; and the wheat that is poisonous is in a different state, viz.: the berry always remaining soft, and is known among farmers as "sick wheat." The cause of sickness is not accounted for—it is a subject that should be investigated.

Currents at the Gates of Hercules.

Some curious investigations have been for some time carried on in the Gut of Gibraltar, by M. Coupvent-des Bois. He has discovered the existence of a superficial current, flowing from the Atlantic into the Mediterranean; and of a deep under-current, flowing from the Mediterranean into the ocean. He has also ascertained that between these two currents there exists a bed of water which is in perfect repose.

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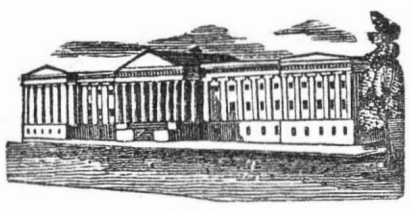

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending September 4, 1849.

To P. O'Neil, of Philadelphia, Pa., for improvement in Spring Mattresses. Patented September 4, 1849.

To James Taylor, of Macon, Geo , for improvement in Bedstead Fastenings. Patented September 4, 1849.

To John J. Flack, of Juliet, Ill., for improvement in Axles of Carriages. Patented September 4, 1849.

To Horace T. Robbins, of Lowell, Mass., for improvement in Brakes for Rail Road Cars. Patented September 4, 1849.

To Alfred C. Hobbs & John Brown, of New York, N. Y., for Machine for Crushing Ice. Patented September 4, 1849.

To Simon Holton, Jr., & W. R. Harris, of Middlebury Vt., for improvement in machines for weaving Harness for Looms. Patented September 4, 1849.

To William Johnson, (Assignee of Alonzo Gilman,) of Troy, N. Y., for improvement in machines for Cutting Paper. Patented September 4, 1849.

To Charles J. Gardner, of Northern Liberties, Pa., (Assignee of Andrew Allen,) of Wilmington, Del., for improvement in apparatus for operating Shuttle Boxes for Looms. Patented September 4, 1849.

To D. O. Ketchum, (Assignee of George Scott,) of Albany, N. Y., for improvement in Moulds for Making Glass Pipes. Patented September 4, 1849.

To Samuel Keene, Jr., of East Bridgwater, Mass., for improvement in machines for Cutting Welts. Patented September 4, 1849.

To Lewis B. Page, of Hartford. Conn., for improvements in the Eccentric Sash Fastener. Patented September 4, 1849.

To J. H. Schomaker & Martin Kuermerle, of Philadelphia, Pa., for improvement in machines for turning leaves of books. Patented September 4, 1849.

To C. M. Miles, of Brockwayville, Pa., for method of Reversing Re-acting Rotary Engines. Patented September 4, 1849.

To C. S. Bishop, of Easton, Pa., for improvements in Street Sweeping Machines. Patented September 4, 1849.

To David Johnston, of Amsterdam, Ohio, for improvement in Cooking Stoves. Patented September 4, 1849.

RE-ISSUE.

To Joseph Battin, of Philadelphia, Pa., for improvement in the machine for Breaking Coal Patented October 6, 1843. Re-issued September 4, 1849.

To Edwin G. Ripley, (Administrator of Edwin Wesson, deceased, of Hartford, Conn., for method of connecting the hammer with the cylinder of Revolving Fire Arms. Patented August 28, 1849.

Important Discovery.

A surgeon of Gottinger has discovered a complete antidote to arsenic. It is peroxyde, or redoxyde of iron, 12 parts of which neutralize one of oxyde of arsenic. Experiments with this antidote have been tried upon rabbits and other animals with complete success. One advantage of it is, that no injury can be done by too large a dose. In cases where large quantities of arsenic have been taken, it has been found useful first to encourage vomiting.

[We cut the above from one of our exchanges; and we have seen it in quite a number. The antidote mentioned is nothing new in discovery. It can be found in all the latest chemical works on poisons, and we described it long ago in the Scientific American. But let no man presume upon its perfectability—no perfect antidote for arsenic, has yet been discovered.

The Cholera has about ceased its direful attacks upon our citizens. The late weather has been beautiful, and the city is healthy.

Ship Building and Navigation.

The Newburyport Herald has the following interesting information concerning European and American ship building, navigation, &c.

"The best British built ships, built in England and Scotland, cost about $97 a ton In the United States, our best ships cost about $65 a ton; Baltic built ships cost $58 a ton, and in the British North American provinces they are built for $40 a ton. The British built ships are rated at Lloyd's as A No. 1 often till they are twenty years old, while the American ships are only rated thus for nine years, and the Province built ships only six years; so that in reality, the difference apparent in one or the other is not so great as it seems, though for the first five years the cheap ship will obtain freight about as readily as those of higher cost.

The greatest advantage which the English ship owner has over the American, is that which is common to him and the manufacturer; and indeed to all other men competent to carry on business which employs a great amount of both capital and labor, that is, a low rate of interest. Reckoning the interest in England at four per cent, which it seldom or never exceeds, and in this country at six per cent, which it seldom or never falls below, it will be found that a British built ship at $97 a ton, is no dearer than an American built ship at $65.

There is a general opinion that the English ships are navigated at a lower cost than the American ships. We have paid some attention to this subject, and think that the opinion is not correct. Though the English ships generally pay somewhat lower wages and keep their men on rather poorer fare, yet they have more men in the ship. The higher wages of American merchantmen have gradually drawn the best of the British, Swedish, Danish, and Norwegian sailors into our service, while the major part of the crews of the British ships are composed of Irish sailors whom the American shipmasters willnet take when they can obtain them from England, Scotland, or the Northern European nations.

Poison of Rusted Wheat.

It is stated that in some portions of the State, people have been made sick, and hogs died of eating the wheat of the season, which has been shrunk by the rust. This is not incredible. It is, we believe settled, that the disease in wheat known as rust, is occasioned by its being attacked in a certain stage of its growth by a parasitic plant of the cryptogamous or fungus species. These plants of which the edible mushroom is one variety, and the mosses and moulds are others, are mostly poisonous; and many of them produce a poison of an exceedingly active character. In fact there are very few of them that are not more or less dangerous, if taken into the system; and even the edible mushroom, at certain seasons, has been known to affect the health of those who make free use of it. We hope the subject will be investigated before the wheat is allowed to enter into general consumption.

[The above is from the Columbus (Ohio) State Journal, and we cannot but think that there must be some mistake in the matter. We therefore coincide with the latter clause of the above, in the hope that the subject will be further investigated.

Cold Plague in the West.

A correspondent of the St. Louis Republican, writing from Quincy, Illinois, August 2d says:

About the year 1826, the people of the western country were visited by a disease called the Cold Plague. From what I have heard concerning it, it was a most fatal disease—taking off its victims in a few hours, or days at most. Sixteen years after, 1832, we had our first visitation from cholera; and precisely sixteen years after 1832, which brings us to the latter period of 1848, we have another visitation from cholera. What these awful facts are intended to teach us, if any Providential anger is really connected therewith, we should endeavor to learn. If there is any natural cause for it—if it is not purely accidental, it might also be of importance to the philosophic among us to learn.

The Wheeling Bridge Case.

Last week, in the U. S. Circuit Court Philadelphia, Judge Grier made a very able and important decision on the motion of an injunction requested by certain citizens of Pa., to restrain the building of the great Bridge over the Ohio at Wheeling Va.

He held, 1st. That the Wheeling Bridge is not such as was authorised by its charter.

2. That the Company are bound strictly by their charter, and cannot subject navigators to trouble, expense or delay. It is no excuse that the encroachment upon navigation is a small encroachment, or a little nuisance, nor is the additional cost and expense of properly constructing the Bridge any excuse.

3d. That as the State of Virginia has not authorised this Bridge, she is not a necessary party to this proceeding.

4th. That the present application is not too late, because there was no reason to anticipate that the defendants would violate their charter.

5th. That the right of the State of Pensylvania, to proceed for an injunction against a nuisance to her citizens without her own territory, is a new question; but if she could not, on that ground, yet by reason of the injury to her own public works, it is probable she may proceed in this Court.

6th. That the question being new, and involving jurisdiction, an injunction will not now be granted, because the injury apprehended is not imminent or irreparable, before the sitting of the Supreme Court; the Company and its individual members are liable for all damages that may be done, and they will gain no advantage by delay; for if a decree goes against them, they will have to take the bridge down at their own expense. The cause will have precedence on the list, and on the first Monday of December, the complainant will have an opportunity of moving the Court for an injunction on bill and answer.

It will thus be seen that, so far, the object of Pennsylvania in bringing about this important suit, has been gained. The final result will be looked for with great anxiety, particularly by the business community of our Commonwealth.

A Great Water Spout.

A Water Spout, of immense size, occurred on Thursday, the 2d inst., near Alpine, Chattanooga county, Ga. It is said to have made an impression in the earth thirty feet deep, and forty or fifty feet wide, and that it eradicated the largest forest trees, and removed rocks weighing several thousand lbs. Not long since one of considerable size fell on the same mountain, not far from what is called Stephens' Gap, that did considerable damage to the timber, that made a hole in the ground about three feet deep, and eighteen or twenty feet in diameter, and what is more astonishing, the sides of the depression are as perpendicular and smooth as if the work had been done with a spade.

The Newfoundland Fisheries.

The importance of the Newfoundland fisheries was recognized long before the first permanent settlement was made upon the continent of North America, and vessels of several European nations resorted to the banks during the fishing season. The English asserted a sovereignty over the banks in virtue of the discoveries of SEBASTIAN CABOR; and the settlement of Newfoundland by Sir HUMPHREY GILBERT, fixed the title and confirmed the predominance of the British in that quarter. As early as the year 1578, the English vessels employed in the fishery were about fifty in number. About a hundred Spanish vessels, at the same time, were annually employed on the banks; as also fifty Portuguese, a hundred and fifty French, and twenty or thirty Biscayan ships—the last being chiefly engaged in the whale fishery. Towards the close of the reign of Queen ELIZABETH, the English fishing vessels frequenting the Newfoundland banks exceeded two hundred sail.

A Correspondent writes to the Intelligencer that he was lately shown the armorial bearings, in colors, of the Washington family, lately brought over from England. He was so struck with the resemblance to the arms of the United States, as to infer that the similarity was intended as a compliment to Washington.

There are some people in the world who eat great quantities of fruit, to *give them an appetite*, forgetting that fruit requires to be digested as well as other kinds of food. Everything is good in its place, to "use and not abuse."

LITERARY NOTICES.

Mechanic's Assistant.

Messrs. Appleton & Co , No. 200 Broadway, this city have just published a very neat volume with the above title. It is edited by D. M. Knappen, A M. and is very useful as a companion to the mechanic and millwright, in the rules which it contains for solving a great number of problems, which come within the range of every day business in the arts. We expect that the public will get a treat when Messrs. Appleton issues their new work on American machines, edited by Proff. Byrne.

Signature Examiner.

C. S. Sloan, specie and exchange broker, 23 Wall St. has had a valuable work compiled embracing the fac-simille signatures of all the presidents and cashiers of the various banks in the United States. As an aid in detecting counterfeit bank notes it is a work of much value. For sale as above.

TO CORRESPONDENTS.

"O. A. J. of Vt."—We have received the receipt, and will try to obtain an allowance from the publishers as you desire—if we succeed, your wishes shall be attended to in regard to the disposal of the money.

"J. E. W. of Miss."—We know of no apparatus of the kind you mention, but are confident that the plan of exhausting the air from meat in the process of salting will be found highly beneficial, because the salt will be more readily admitted into the pores of the meat. The temperature to preserve meat must be at or below 50.

"Wm. A. W. of Ala."—Your wishes shall be attended to soon. We have sent you three numbers of the work you ordered, which are all that are at present issued and possibly all that will be issued.—We have given you credit for the balance as you desired.

"D. L. G. of N. H."—Your interest will be in no way effected by any delay that may be necessary in completing your arrangements.

"E. R. of N. Y.',—The address of W. and B. Douglass, is Middletown Ct. and that of Mr. Gatchet, Cin. O. we think.

"L. T. of N. Y."—The letter to which you refer appears to have been written by a clerk in our office, who misundersood some remarks we made in regard to your business—however it has done no harm.—You will find the notice you desired in another column of this number,

"D. and W. of Ct."—Your wishes shall be attended to.—You can proceed to manufacture now

"C. R. of Vt."—The instrument about which you inquire can not be found in this city, to our knowledge, and we have made some inquiries concerning it, but without success.

"C. and B. of Mass."—Your model has been received together with the $30, and your business will be attended to immediately, probably in two days after you receive this notice, the papers will be in your hands.

"R. C. D. of Ga."—Accept our thanks for the fine list of subscribers with which you have favored us, and assure your friends that we design and fulfil every promise which is held forth in the new prospectus.

We wonder who else there is that can procure us 30 subscribers out of a population of 500 inhabitants.

"M. N. S. of Pa."—There is no possible manner in which you can bring your invention before the public to so good advantage as to publish a description of it, accompanied with an engraving in the Sci. American.

It is a good invention and you only need to get it before the public to have it appreciated. Send us $8 and if you do not realize hundreds of dollars by having a description of it in our journal we will return you the amount remitted.

"E. B. of Mass.—Your plan appears to be an improvement on the Kephart safe, but a patent could not be obtained for it, as the walls of buildings in many instances have been built with spaces between them for currents

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of air. It is singular to us how a patent was obtained on the safe.

"A. H. of Me."—We have replied to your last, by mail, I hope it will be satisfactory but if it is not, institute inquiry of the commissioner of patents and he will corroborate our statement.

"A. P. of N. Y."—Your letter of the 3d inst. is at hand, and we shall proceed to making out your papers in a few days.

"S. H. of N. Y."—We cannot supply you with No. 34, as the demand for that No. has been so great that we are out of them.

"L. R. of Del."— The notice to you was an error,—your subscription will expire with No. 26, vol. 5.

"J. G. P. of Va."—We have sent you the Nos. you requested, except Nos. 18 and 39, of vol. 2, which we have not. There is a balance of 75 cents which we will add to your subscription, in the absence of any thing to send you.

A. S. of N. C. T. and B. of N. Y. W. W. of Ct. S. S. R. of Tenn. and J. G. P. of R. I. —Your specifications have been completed since our last issue, and the papers sent to you for signatures.

R. and W. and P. B. of Ct. L. and B. of N J. R. O. G. of Ct. and I. M. of Pa.—Your papers have been deposited in the Patent Office since last week's issue of the Scientific Amer.

Money received on account of Patent Office business since Sep. 4th—A. S. of N. C. $50. L. T. of N. Y. $5. P. B. of Ct. $20. J. F. of Mass. $30. J. B. F. of N. Y. $20. H. A. of Ill. $30. I. M. of Pa. $20. L. B. of Ala. $30. W. S. of N. H. $25.

Read This.

It is known to most of our subscribers that it has been our usual custom to send with the last number of each volume a prospectus of the forthcoming volume printed on a separate sheet, from the paper and a blank left for filling out with the names of new subscribers.

As the Post office law now prohibits the sending of such circulars we are obliged to refrain from thus accomodating our patrons this year which we very much regret, however we hope and feel confident that our friends will not take less active measures to get up clubs than if a blank was sent for that particular purpose.

Peruse our new prospectus which has been published in each number of the Scientific American for the last three weeks, and if you think the new volume is to be worth its cost (illustrated as it will be with our 500 engravings of new and useful machines,) please make no delay in ordering it yourself and withal, ask a friend or two to join you.

See our terms to clubs and remember you are not only rendering your friends a service by getting them to subscribe but an also contributing to advance the cause of inventors and helping to sustain their rights.

The Scientific American has advocated the interest of inventors and mechanics since published by its present proprietors and it shall continue to do so as long as the publication is sustained.

To one and all we would say subscribe, and to insure yourelves the volume complete we would advise you to send in your orders early as the first numbers are many times exhausted before the volume has one quarter expired.

Scientific American for Binding

As this number closes volume 4, we would suggest to those that desire to have these numbers bound to send them to this office and have them executed in our usual manner, for the low price of 75 cents.

You can depend upon having your volumes well bound by sending them to this office as they will be executed to conform in style with hundreds that we have bound for ourselves and the trade.

The Benefits of Illustrating Inventions.

According to our Patent Laws, no old machine that may have been used abroad, if not used here, and not described in some printed work, would interfere with a patent in this country. All the machines which we illustrate, if not described, as patented, or about to be patented, are made common property,—their parts are free to be used by any person. Many of our subscribers receive valuable hints in this way. We have published a history of the rotary engine in this volume, illustrated with 67 good engravings. We have no doubt but these engravings will be the means of saving much to inventors, it lets them know what has been done before, and makes them acquainted with those things that would prevent them from securing a patent.

We like to throw as much light abroad as possible. Many ingenious men spend both time and money to perfect machinery (to them unknown) which have been tried and laid aside. We will honestly endeavor to be a beacon light to guide the ingenious man into the right haven, by pointing out the rocks and shoals that surround him.

Subscribers Attend.

Remember—That this number of the Scientific American closes volume 4.

Remember—That our terms for this paper are low and payable in advance in all cases.

Remember—That the Scientific American is the leading mechanical paper in this country.

Remember—That this publication is considered a standard work and that thousands of volumes are bound every year, many of which are placed in public libraries.

Remember—That volume 5 commences next week, and that it is to be printed on new type, to be embellished with a beautiful border and that the work shall exceed in interest all past volumes.

Remember—That we have a friendly confidence that all our subscribers whose term expires with this number, will re-subscribe and, withal, send along at least one more name each besides their own.

Remember—That every person who subscribes gets full value for his money, and we publish many receipts worth ten times the amount to every body.

The inducements to subscribe for volume 5, are of no ordinary character, and no man can lay out two dollars to better advantage, and that will return as good interest; as investing the same in a years' subscription.

In our next volume there will be more illustrations of machines and machinery, of every description, than can be found in any book that is five times the price of a year's subscription.

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